DOCUMENT RESUME

ED 360 110 RC 018 977

AUTHOR Joslin, Paul; Gerlovich, Jack
TITLE PSInet: A Teleconferencing Network for Teachers.
PUB DATE 26 Oct 92
NOTE 7p.; Paper presented at the Annual Rural and Small Schools Conference (14th, Manhattan, KS, October 26-27, 1992).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Computer Networks; *Educational Cooperation; Educational Innovation; Educational Resources; *Educational Technology; Elementary School Students; Elementary School Teachers; Elementary Secondary Education; *Information Networks; *Rural Education; Secondary School Students; Secondary School Teachers; *Teleconferencing
IDENTIFIERS *PSInet

ABSTRACT

PSInet (People Sharing Information Network) is a national computer teleconferencing network for science and mathematics teachers. It is funded by the National Science Foundation (NSF) in cooperation with IBM and is housed at Drake University in Des Moines (Iowa). The NSF grant has provided: a workstation computer and software for each state department of education office and each major educational office in Washington, D.C.; state servers to be linked to users in each state; and training for users. By June 1993, all states will have servers in place and may begin to link down to regional servers and then to school buildings. Ohio already has connected all schools to the system. Iowa is proceeding with a plan to connect all schools, colleges, and major museums with a state network called IOWANET. If installed in every school in the country the PSInet would make it possible for teachers and students everywhere to communicate easily and inexpensively with each other. The potential for reducing teacher isolation and enhancing curriculum and teaching in small and rural schools is dramatic. This innovative educational tool provides the basis for a potential paradigm shift in the process of education and for widespread cooperative education on real issues and problems. Examples of current applications of the system and the necessary equipment are described. (SV)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Paul H. Joslin
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

ED360110

# PSInet
# A TELECONFERENCING NETWORK FOR TEACHERS

Paul Joslin and Jack Gerlovich
PSInet Projects
School of Education
Drake University
Des Moines, IA 50311

## THE POTENTIAL

Are there current technologies that can be used to reduce the isolation felt by teachers and students in small and/or rural schools? For example, what could happen if teachers in such schools were connected to a *dialogic* communications network that would enable them to quickly, easily and inexpensively communicate with each other? What could happen, if this communications network was also available to *every student?* What could happen if this system were installed in every school building, or possibly every classroom, nationwide? Suppose such a system could give every teacher and student access to every teacher and student in the world? Consider a few examples.

Seventh graders in a small school in Ohio want to learn about whales. They contact a school along the coast of Oregon and the students there monitor the Spring whale migrations and report what they observe to the students in Ohio.

Eighth graders in a rural school in South Dakota want to study marine life along the coast of Florida. They find a class in southern Florida. The students exchange information and observations about South Dakota prairies and Florida marine fauna and flora.

Fifth graders in a small school in northeast Iowa are studying creative writing. Each student wants a partner. Because there are only fifteen students in the class, choice is limited. So, they contact a small school in another part of Iowa and partners are arranged. Each student starts a story with two sentences and sends it to the partner who adds two sentences and sends it back. Instead of a three-week transfer in the mails, the exchange occurs each night so that the writing proceeds with the fresh material every day until the project is complete. When the two classes have completed the project, the stories are shared not only between the classes, but with any class, anywhere in the country, that wants to read them.

A second grader has a burning question - If the Sun is so bright, and if other stars are also very bright, like the Sun, how come space is dark? The teacher doesn't have the answer nor should she be expected to. The teacher recognizes that the answer to the question will not be found in local school resources. So, she has the student pose the question on the network. The question is seen by many persons. Three decide to respond. One is a high

Presented to the 14th Annual Rural & Small Schools Conference
Kansas State University, Manhattan, KS
October 26, 1992

RC 019977



BEST COPY AVAILABLE

school physics teacher, another a high school physics student, the third a retired attorney. The attorney goes to the local public library for information and suggests an answer. All three respond. But the answers differ a bit. The four carry out a three-day dialog about the best answer. The student questioner doesn't know the possible social hierarchic positions of the respondents. She only knows them as Dick, Ann, and Greg. The whole exchange is straightforward and egalitarian.

A chemistry teacher in Utah has a larger class enrollment than expected and is short six textbooks. She is using an older edition and doesn't plan to buy new books until next year. On the system she asks if anyone has copies of the older edition of the books. *Next day* she has five offers each for the cost of shipping.

High school science teachers in small, rural schools along the Little Sioux River in northwest Iowa decide to repeat a study done nearly 20 years ago. In the earlier study 12 teams of students in schools along the river each selected a local observational site. Once each month they visited the site and recorded chemical and physical data that when pooled conveyed an accurate but static environmental picture of the river.

In the earlier study data were recorded on paper and the reports mailed to a Drake University professor who reproduced them on a spirit copier and mailed the collected reports out to each team. Students in each school analyzed the data and made inferences from them but there were no interactions or dialog among the students on the data, the inferences or their meanings.

In the contemporary study students may take a laptop computer to the site and enter the data directly into it. Back at school the data are transferred instantly over the system to all other teams for next-day analysis. The teams all go out to their recording stations on the same day and as water moves down the river a dynamic picture of the river is produced. Teams send their data tables, graphs and analyses instantly to all other teams for review and critique. Discussions of these results then occur between teams and their teachers.

Could such events happen? They already have! And on a fantastic new system that has been in use by teachers for not much more than one year. That system is called PSInet, (People Sharing Information Network). All schools in Ohio have been connected to the system and projects are underway in Oregon and Iowa to link all schools to a state and to the national server. In Iowa every *school building* will be linked to every public and private college and every major museum.

## HOW THE SYSTEM WORKS

The system consists of the connected USERS. Each operates from a local computer called a WORKSTATION. Each workstation is connected to a SERVER (computer). The server is a repository and turnstile for the information moving through the system.

The information moves in the form of MESSAGES or PAPERS which are POSTED to CONFERENCES and their subordinate SESSIONS. The server automatically stores and catalogs all papers and messages it receives and also automatically relays them to the workstations of the users. A message is private and goes only between the sender and one, possibly several, users. A paper goes from a user to the server which POSTS or files it with the

appropriate conference and session. It then sends it along to every user that has joined, or affiliated with, that particular conference/session.

A first time user opens up the computer screen, observes a list of conferences and their sessions and decides which to affiliate with. Just as one city can host many conferences and their sessions at one time, a server can handle many conferences and their sessions simultaneously. While each user may send or post papers to any session within any conference, he or she will receive papers only from the conferences joined.

The system is linked by phone lines. A user's computer automatically contacts, by phone modem, the nearest server, typically at a regional or area education office, and the message or paper is sent along. Most such regional education agencies have installed 1-800 phone lines for those users who normally would have a toll call from workstation to nearest server.

If the message or paper is to be sent to a person or audience outside the local server network, it is relayed to the state server, which in turn relays the message or paper to the national server. The national server relays it down through the state and regional servers to the intended audience or user. A global server, called a "gateway" or "bridging" computer has been built and by mid-1993 will automatically relay messages and papers to the Internet for distribution worldwide.

## UNIQUE FEATURES OF THE SYSTEM

A unique feature of the system is that any user may start a conference at any time. Others, according to their needs and interests, then join in to dialog on the subject matter of the conference/sessions. When a conference and/or one of its subordinate sessions has outlived its usefulness it is removed, usually by the user who started it. Some conferences, especially those dealing with curriculum and teaching, may remain permanently and are controlled by the SYSOP (system operator) who makes decisions based on input from the system's users.

Another distinct feature of the system is OFF-LINE BATCH PROCESSING. A user does all work and executes all commands while disconnected from the phone line. The work is queued up and the computer is given a selected time to call the nearest server. Because phone line connect times are so short phone costs are very low.

The batch processing system is very useful to teachers. First, one may interrupt work and return to complete it later. Secondly, students may take whatever time they need to perfect whatever they plan to write. Some schools have one workstation on a cart and have a student wheel it from room to room. At the end of the day it is connected to a phone line. The person responsible, usually a student, executes the command that instructs the computer when to dial the server.

The information exchange between workstation and computer takes place at the designated time. Typically this will be at night when the phone lines are less busy and the rates lower (if a long distance call is required between user's workstation and nearest server). Next morning the local workstation computer is disconnected from the phone line, wheeled from room to room and teachers and students in turn take off messages and papers and then enter what they want to send.

## U.S. MAIL ANALOGY

The system is analogous to the U.S. mail service. A user writes a message (letter) using the built-in word processor. The word processor is very simple and especially easy for students to use. A user may, however, use another, more powerful word processing software that is installed on the computer.

When a message is ready, a screen is displayed which asks for the addressing information. This is like an envelope. The user name is requested and this may be called up from any local, state, or national phone directory stored in the server's memory. It is not necessary to supply the address because the server "knows" all addresses by user name. The envelope also contains a line for a title for the item. This enables the recipient to identify the item without opening it. These outgoing messages are automatically placed in the "outgoing mail box," but will not be sent without an explicit MAIL/DIAL command.

Papers are handled in a similar way. However, the envelope procedure will ask for the conference and session and server(s) that the paper is to be sent to. This is somewhat analogous to sending a paper to a conference chairman who will have it printed for distribution to all those attending a selected session at a conference. A significant difference is that a user's paper will be sent overnight, and at very low cost, to all those joined to the selected conference session.

As with regular mail a user goes to the "mailbox," (the workstation computer), usually in the morning. Upon the proper commands incoming mail is received and three lists appear. The first is a report by the server of what it did during the night, a record of every directed transaction. The second is the list of incoming messages and the third is the list of incoming papers.

The list of completed commands may be saved for later examination, but is typically discarded. The user then examines the other two lists. As with regular mail, and based on brief one-line information listed, (as on a business envelope), each item may be deleted (discarded), inserted (saved and filed) or examined in full before the decision is made regarding whether to insert or delete. Inserted items are automatically filed under appropriate headings.

## WHAT IS NEEDED?

A user needs a workstation computer. This must be an IBM, or compatible, with a 20 MB hard disc or larger, and with at least 512 K of RAM, or a MAC with hard disk of equal memory. Currently available software is for the IBM, and for a MAC a software emulation package. Hypercard software for the MAC is anticipated shortly. A modem of 2400 baud or better is also required.

## PSInet (PEOPLE SHARING INFORMATION NETWORK) NSF PROJECT

The basic system is the national PSInet project. This is a national computer teleconferencing network for science and mathematics educators. It is funded through a grant from the National Science Foundation in cooperation with the IBM company and is housed at Drake University in Des Moines, Iowa under the management of its initiator, Professor Jack Gerlovich.

The grant has provided a workstation computer and software for each state department of education office and each major educational office in Washington DC, and training for the users. Each user's workstation has been connected to the national server.

The grant also has provided each state with a state server to be linked to subordinate servers or users, depending upon the size of the user population to be served. By June 1993 all states will have servers in place and may begin to link down to regional servers and eventually to all school buidlings.

## IOWANET: AN EXAMPLE OF A STATE NETWORK

A grant to Drake University's School of Education from the Roy J. Carver Charitable Trust is making it possible to link every major museum, every two- and four year college or university and *every school building* in the state to the PSInet dialogic teleconferencing system.

The project, called IOWANET, has provided for the installation of a computer training laboratory in Drake's Education Building and provides one teacher from every school building with one day's training, system software for the local workstation and up to $100 reimbursement for expenses of attending a training session. Cost per workstation for the IOWNET project, exclusive of the workstation computer at each site, is about $300.

It also provides 15 regional servers (computers) and training for a system operator for each. The servers will be strategically placed, typically in the central office of each of Iowa's 15 area education service agencies. It is anticipated that each AEA will install an 1-800 phone line for those schools that may have a long-distance call to the server and will also pay any long-distance phone charges to the state server.

The IOWANET state server currently has conferences on science, health and the environment. As the regional servers come on-line and post their own unique conferences, conferences on the state server will be adjusted to meet the expressed needs of users. These will include a wide variety of subjects, topics, school levels, across the major topics of curriculum and teaching.

Federal Eisenhower funds were used in Ohio to connect all schools along the Iowa pattern. Oregon has several local school districts connected and is planning a statewide system similar to the Ohio and Iowa systems.

## SUMMARY

If installed in every school in the country the PSInet dialogic teleconferencing system would make it possible for every teacher and student everywhere to easily, efficiently, and inexpensively communicate with any other teacher or student. The potential for reducing isolation for teachers, and for enhancing curriculum and teaching in small and rural schools is dramatic.

The national framework is in place, and like Iowa, Ohio and Oregon, the other states are now actively linking their regional education agencies and schools. The system is linked to all state departments of education, all the major federal education offices in Washington, DC and also with many professional and business organizations serving educators. The National Education Agency is linking all its chapters and all schools in its school improvement projects.

This innovative educational tool provides the basis for a potential paradigm shift in the process of education especially in small and rural schools. It provides the technologic basis for teacher/student empowerment for widespread cooperative education on real questions, problems and issues.

## REFERENCES

Friedl, P. J. (1992). Science Education Goes on-line with PSInet* (TM) . Journal of Science Education and Technology, 1(2), 135-146.

Gerlovich, J., Friedl, P., & Gillan, Educators electronic exchange, The Science Teacher, 55(3), 41-43.

Gerlovich, J., & Joslin, P., Technology available to teachers through area education agencies, Iowa Science Teachers Journal, 27(3), 14-18.

Watts, G. D., & Castle, S. (1992). Electronic networking and the construction of professional knowledge. Phi Delta Kappan, (May), 684-689.

## FOR MORE INFORMATION:

PSInet Projects
School of Education
Drake University
Des Moines, IA 50311

Jack Gerlovich, Director
Paul Joslin, Assistant Director
VOICE: 515-271-2114 FAX: 4544
PSInet: GERLOVICH@CSSS